

CLAIMS

1. A system for selecting title data and for providing selected title data to a customer, comprising:

a service bureau coupled to a communications network, that captures a plurality
5 of title data for a plurality of titles, the service bureau including an encryption device that encrypts the title data and provides encrypted title data and a decryption key to the communications network;

an entry portal coupled to the communications network, that provides summary
data of the plurality of title data, that allows the customer to select and order the selected
10 title data, and that provides selection information data and customer information data to the communications network;

a central storage facility coupled to the communications network, that receives
the encrypted title data and the decryption key, that catalogs and stores the encrypted title
data and the decryption key, and that upon receipt of the selection information data,
15 provides the encrypted title data and the decryption key to the communications network;

a delivery device coupled to the communications network, that receives the
selection information data and the customer information data, that requests the encrypted
title data and the decryption key, that includes a decryption device that decrypts the
encrypted title data using the decryption key, and that provides decrypted selected title
20 data; and

a watermarking device, that time/frequency modulates at least a portion of the
decrypted selected title data at a plurality of locations within the decrypted selected title
data, according to a randomly selected time/frequency modulation to numbers
relationship, to watermark the decrypted selected title data with the customer information
25 data, and that provides watermarked title data as the selected title data to the customer.

2. The system as claimed in claim 1, further comprising the communications
network which is a secure network that includes authentication of a source of each
transfer of the encrypted title data, the selection information data, the customer
30 information data, the summary data, and the decryption key.

3. The system as claimed in claim 1, wherein the service bureau includes a plurality of media reading devices that capture the plurality of title data.

4. The system as claimed in claim 1, wherein the service bureau is coupled to a wide area network, and the service bureau receives the plurality of title data from a content provider over the wide area network.

5. The system as claimed in claim 4, wherein the service bureau is coupled to a subscriber network that automatically provides updated title data.

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6. The system as claimed in claim 1, wherein the service bureau further comprises an audio mastering station that digitizes audio title data into digitized audio title data, that formats the digitized audio title data into a selected format and that provides the audio title data as the title data.

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7. The system as claimed in claim 1, wherein the service bureau further comprises an encoding device that receives the title data and that splits the title data into audio title data and video title data, and wherein the encryption device encrypts both the audio title data and the video title data, and provides a decryption key for each of encrypted audio title data and encrypted video title data.

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8. The system as claimed in claim 7, wherein the central storage facility stores the encrypted audio title data, the encrypted video title data, and the decryption key for each of the encrypted audio title data and the encrypted video title data.

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9. The system as claimed in claim 8, wherein the central storage facility also provides to the communications network upon receipt of the selection information data, the encrypted video title data, the encrypted audio title data, and the decryption key for each of the encrypted audio title data and the encrypted video title data.

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10. The system as claimed in claim 9, wherein the decryption device in response to receipt of the encrypted audio title data, the encrypted video title data, and the decryption

key for each of the encrypted audio title data and video title data, decrypts the encrypted audio title data and the encrypted video title data to provide decrypted audio title data and decrypted video title data.

11. The system as claimed in claim 10, wherein the delivery device further comprises
5 an encoding device that combines the decrypted audio title data and the decrypted video title data to provide the decrypted selected title data.

12. The system as claimed in claim 1, wherein the service bureau further includes an
encoding station that divides up the title data into a plurality of chunks of the title data,
10 and wherein the encryption device encrypts each chunk of the title data, and provides a decryption key for each chunk of encrypted title data and a correlation map defining a correlation between the plurality of chunks of encrypted title data.

13. The system as claimed in claim 12, wherein the central storage facility stores the
15 correlation map, the plurality of chunks of encrypted title data, and the corresponding decryption key for each chunk of encrypted title data.

14. The system as claimed in claim 13, wherein the central storage facility also
provides to the communications network upon receipt of the selection information data,
20 the correlation map, the plurality of chunks of encrypted title data, and the corresponding decryption key for each chunk of encrypted title data.

15. The system as claimed in claim 14, wherein the decryption device in response to
receipt of the plurality of chunks of encrypted title data and the corresponding decryption
25 key for each chunk of decrypted title data, decrypts each chunk of encrypted title data to provide a plurality of chunks of decrypted title data.

16. The system as claimed in claim 15, wherein the delivery device further comprises
an encoding device that combines the plurality of chunks of decrypted title data
30 according to the correlation map, to provide the decrypted selected title data.

17. The system as claimed in claim 1, wherein the service bureau further includes an encoding device that receives the title data and encodes the title data into encoded title data.

5 18. The system as claimed in claim 1, wherein the service bureau further includes an encoding device that determines where in the title data to insert a placeholder tag, and that inserts the placeholder tag at locations within the title data.

19. The system as claimed in claim 18, wherein the encoding device provides a
10 correlation map of the locations where the placeholder tag has been inserted into the title data.

20. The system as claimed in claim 19, wherein the central storage facility also stores the correlation map and a relationship between each of the encrypted title data and the
15 decryption key.

21. The system as claimed in claim 20, wherein the central storage facility also provides to the communications network upon receipt of the selection information data, the correlation map of the locations where the placeholder tag has been inserted into the
20 encrypted title data.

22. The system as claimed in claim 21, wherein the delivery device in response to receipt of the correlation map of the locations where the placeholder tag has been inserted into the encrypted title data, inserts the customer information data into the
25 placeholder tag of the decrypted selected title data at the locations identified by the map, to provide watermarked decrypted selected title data.

23. The system as claimed in claim 1, wherein the title data includes any of both video title data and audio title data, audio title data, and software title data.

24. The system as claimed in claim 1, wherein the service bureau further comprises a local area network and a controller coupled to the local area network, the controller including a user interface that allows a user to control any device of the service bureau.

5 25. The system as claimed in claim 24, wherein the controller includes a preview encoding device that receives the preview data, formats the preview data, and encodes the preview data to provide formatted and encoded preview data.

26. The system as claimed in claim 1, wherein the central storage facility also stores a relationship between each of the encrypted title data, the decryption key, and the
10 preview data.

27. The system as claimed in claim 26, wherein the central storage facility provides the preview data to the communications network in response to receipt of the selection information data, so that the preview data can be viewed by the customer at the entry
15 portal.

28. The system as claimed in claim 1, wherein the central storage facility also stores a plurality of advertising content data.

29. The system as claimed in claim 28, wherein the central storage facility upon receipt of the selection information data and the customer information data, also provides the advertising content data to the communications network based on the customer
20 information data.

30. The system as claimed in claim 29, wherein the central storage facility also stores a history of each transaction by a customer, and provides the advertising content data based on one of demographics data of the customer information data and the prior history of the customer.

31. The system as claimed in claim 1, wherein the central storage facility also includes an accounting database that includes the customer information data, a serial number of the decrypted selected title data, an association between the serial number of
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the decrypted selected title data and the customer information data, and a record of any royalties due for each decrypted selected title data that has been purchased with the system.

5 32. The system as claimed in claim 1, wherein the delivery device responds to receipt of the selection title information data and the customer information data, checks a local cache for the encrypted title data, and if the encrypted title data is not in the local cache, requests the encrypted title data from the central storage facility.

10 33. The system as claimed in claim 1, wherein encrypted title data includes encrypted audio title data, and wherein the decryption device decrypts the encrypted audio title data with the corresponding decryption key to provide decrypted selected audio title data.

15 34. The system as claimed in claim 33, wherein the delivery device includes a decoding device that receives the decrypted selected audio title data, and that decodes at least a portion of the decrypted selected audio title data.

20 35. The system as claimed in claim 33, wherein the watermarking device watermarks a portion of the decrypted selected audio title data to provide a watermarked portion of the decrypted selected audio title data.

25 36. The system as claimed in claim 35, wherein the delivery device includes an encoding device that receives the watermarked portion of the decrypted selected audio title data, and that encodes the watermarked portion of the decrypted selected audio title data.

30 37. The system as claimed in claim 35, wherein the service bureau includes a scanning device that scans the audio title data to determine one of a frequency deviation between channels of the audio title data and time intervals within the audio title data for modulating the audio title data, and that determines a plurality of placement locations for modulating the audio title data that are one of locations where the frequency deviation is less than a predetermined frequency deviation and time intervals where time/frequency

modulating the audio title data are not discernible to a human ear, and that provides a correlation map.

38. The system as claimed in claim 37, wherein the watermarking device includes a watermarking key generator that in response to receipt of the customer information data and the decrypted selected audio title data, randomly selects a randomly selected time/frequency modulation and number relationship from a plurality of time/frequency modulation and number relationships for modulating the decrypted selected audio title data, and that combines the randomly selected time/frequency modulation and number relationship with the customer information data to provide a watermarking key.

39. The system as claimed in claim 38, wherein the central storage facility also stores the watermarking key and the correlation map.

40. The system as claimed in claim 38, wherein the watermarking device also randomly selects randomly selected locations from the plurality of placement locations, for time/frequency modulating the decrypted selected audio title data.

41. The system as claimed in claim 40, wherein the watermarking device includes a waveform modulator that receives the watermarking key, time/frequency modulates the decrypted selected audio title data according to the randomly selected time/frequency modulation and number relationship at the randomly selected locations to insert the customer information data into the decrypted selected audio title data at the randomly selected locations, and that provides the watermarked portion of the decrypted selected audio title data.

42. The system as claimed in claim 41, wherein the manufacturing device combines the watermarked portion of the decrypted selected audio title data with the decrypted selected audio title data, to provide watermarked decrypted selected audio title data as the decrypted selected title data.

43. The system as claimed in claim 42, wherein the encrypted title data includes encrypted video title data, wherein the decryption device also decrypts the encrypted

video title data to provide decrypted selected video title data, and wherein the manufacturing device combines the watermarked decrypted selected audio title data with decrypted selected video title data to provide the decrypted selected title data.

5 44. The system as claimed in claim 40, wherein the watermarking device selects a channel of the decrypted selected audio title data as a reference channel, and selects another channel of the decrypted selected audio title data as a watermarked channel that is time/frequency modulated at the randomly selected locations to provide the watermarked channel.

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45. The system as claimed in claim 44, wherein the watermarking device randomly changes the reference channel and the watermarked channel.

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46. The system as claimed in claim 1, wherein the delivery device further comprises an advertising insertion device that one of receives advertisement content data from the communications network and that selects advertisement content data from a local cache, and that inserts the advertisement content data into the selected title data.

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47. The system as claimed in claim 1, wherein the delivery device provides the selected title data to a title on demand network.

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48. The system as claimed in claim 1, wherein the delivery device provides the selected title data to the communications network so that it can be accessed by the customer at the entry portal.

49. The system as claimed in claim 1, wherein the delivery device includes a burning device that burns a selected medium with the selected title data.

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50. The system as claimed in claim 49, wherein the delivery device further includes a printer that prints any of the selected medium, a label for the selected medium, and packaging for the selected medium, with any of vendor identification data, customer information data, graphics data and a bar code.

51. The system as claimed in claim 49, wherein the delivery device further includes a local queue and status manager device that allows a user with specified privileges to manage an order in which the selected title data is burned.

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52. The system as claimed in claim 51, wherein the entry portal is coupled to a master queue manager device that allows a user with certain privileges to manage an order in which the system provides the selected title data, and that provides a status indicator of a status of an order submitted to the system.

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53. The system as claimed in claim 1, wherein the delivery device further comprises a local cache storing a plurality of encrypted title data that can be changed according to selected criteria.

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54. The system as claimed in claim 53, wherein the selected criteria can be configured to delete least-ordered encrypted title data.

55. The system as claimed in claim 53, wherein the selected criteria can be configured to ensure the specified encrypted title data are not purged from the local cache.

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56. The system as claimed in claim 1, wherein the entry portal is coupled to an electronic commerce web site.

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57. The system as claimed in claim 1, wherein the entry portal is coupled to accounting hooks that allow the customer to submit an order and obtain approval for the order, and that provides the customer information data to the communications network.

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58. A method of selecting title data and delivering selected title data to a customer, the method comprising the steps of:

capturing a plurality of title data for a plurality of titles;

encrypting the plurality of title data for the plurality of titles to provide a plurality of encrypted title data and a corresponding decryption key for each encrypted title data;

cataloging and storing the plurality of encrypted title data and each corresponding decryption key at a central storage facility;

5 previewing summary data for the plurality of title data with an entry portal coupled to a communications network;

selecting and ordering the selected title data through the entry portal, and providing selection information data and customer information data to the communications network;

10 in response to receipt of the selection information data via the communications network by the central storage facility, transmitting the encrypted title data corresponding to the selected title data and the corresponding decryption key via the communications network;

15 in response to receiving the encrypted title data and the corresponding decryption key, decrypting the encrypted title data with the decryption key to provide decrypted selected title data;

20 time/frequency modulating at least a portion of the decrypted selected title data at a plurality of locations, according to a randomly selected time/frequency modulation to number relationship, to watermark the decrypted selected title data with the customer information data, and to provide watermarked title data; and

providing the watermarked title data to the customer as the selected title data.

59. The method as claimed in claim 58, wherein the step of capturing the title data includes capturing preview data.

60. The method as claimed in claim 59, wherein the step of capturing the preview data includes formatting the preview data and encoding the preview data to provide formatted and encoded preview data.

61. The method as claimed in claim 59, wherein the step of cataloging and storing includes cataloging and storing the preview data, and a relationship between each of the encrypted title data, the decryption key, and the preview data.

62. The method as claimed in claim 61, wherein the step of transmitting includes transmitting the preview data from the central storage facility to the entry portal in response to the receipt of the selection information data by the central storage facility, so that the preview data can be viewed by the customer.

63. The method as claimed in claim 58, wherein the step of capturing the plurality of title data includes receiving the plurality of title data over a wide area network from a content provider.

64. The method as claimed in claim 63, wherein the step of capturing the title data further includes periodically receiving updated title data from a subscriber network.

65. The method as claimed in claim 58, wherein the step of capturing the title data includes digitizing audio title data and formatting the audio title data into a selected format.

66. The method as claimed in claim 58, wherein the step of capturing the title data includes splitting the title data into video title data and audio title data, and wherein the step of encrypting the title data includes encrypting both the audio title data and the video title data, and providing a decryption key for each of the encrypted audio title data and encrypted video title data.

67. The method as claimed in claim 66, wherein the step of cataloging and storing includes storing the encrypted audio title data, the encrypted video title data, and the decryption key for each of the encrypted audio title data and the encrypted video title data.

68. The method as claimed in claim 67, wherein the step of transmitting the encrypted title data includes transmitting the encrypted video title data, the encrypted audio title data, and the decryption key for each of the encrypted audio title data and the encrypted video title data.

69. The method as claimed in claim 68, wherein the step of decrypting the encrypted title data includes decrypting the encrypted audio title data and the encrypted video title data with the decryption key for each of the encrypted audio title data and the encrypted video title data, to provide decrypted audio title data and decrypted video title data.

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70. The method as claimed in claim 69, further comprising the step of combining the decrypted audio title data and the decrypted video title data to provide the decrypted selected title data.

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71. The method as claimed in claim 58, further comprising the step of dividing up the title data into a plurality of chunks of the title data, and wherein the step of encrypting the title data includes encrypting each chunk of the title data, providing a corresponding decryption key for each chunk of encrypted title data, and a correlation map defining a correlation between the plurality of chunks of encrypted title data.

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72. The method as claimed in claim 71, wherein the step of cataloging and storing includes storing the correlation map, the plurality of chunks of encrypted title data, and the corresponding decryption key for each chunk of encrypted title data.

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73. The method as claimed in claim 72, wherein the step of transmitting includes transmitting the plurality of chunks of encrypted title data, the corresponding decryption key for each chunk of encrypted title data, and the correlation map.

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74. The method as claimed in claim 73, wherein the step of decrypting includes decrypting each chunk of encrypted title data with the corresponding decryption key to provide a plurality of chunks of decrypted title data.

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75. The method as claimed in claim 74, further comprising the step of combining the plurality of chunks of decrypted title data according to the correlation map to provide the decrypted selected title data.

76. The method as claimed in claim 58, further comprising the step of encoding the title data into encoded title data.

77. The method as claimed in claim 58, further comprising the steps of determining a plurality of locations in the title data to add placeholder tag data, inserting the placeholder tag data into the title data at the plurality of locations and providing a correlation map of the plurality of locations where the placeholder tag data has been inserted into the title data.

78. The method as claimed in claim 77, wherein the step of storing includes storing at the central storage facility the correlation map of the plurality of locations where the placeholder tag has been inserted into the title data.

79. The method as claimed in claim 78, wherein the step of transmitting the encrypted title data includes transmitting the correlation map of the plurality of locations where the placeholder tag data has been inserted into the title data.

80. The method as claimed in claim 79, further comprising the step of inserting the customer information data into the placeholder tag of the decrypted selected title data at the plurality of locations identified by the correlation map to provide the watermarked title data.

81. The method as claimed in claim 58, wherein the step of capturing the title data includes capturing any of both video title data and audio title data, audio title data, and software title data.

82. The method as claimed in claim 58, wherein the step of cataloging and storing includes cataloging and storing a plurality of advertising content data.

83. The method as claimed in claim 82, wherein the step of transmitting includes transmitting the advertising content data, in response to the central storage facility also receiving the customer information data.

84. The method as claimed in claim 83, wherein the step of storing includes storing a history of a customer of each transaction, and the step of transmitting the advertising content data includes selecting the advertising content data based on one of
5 demographics information within the customer information data and based on the history of the customer.

85. The method as claimed in claim 58, further comprising the step of associating a serial number of the decrypted selected title data with the customer information data, and
10 storing the serial number, the customer information data and the association between the serial number and the customer information data at the central storage facility.

86. The method as claimed in claim 58, further comprising the step of checking a local cache for the encrypted title data, and if the encrypted title data is not in the local
15 cache, requesting the encrypted title data from the central storage facility.

87. The method as claimed in claim 58, wherein the encrypted title data includes encrypted audio title data, and wherein the step of decrypting the encrypted title data includes decrypting the encrypted audio title data with the decryption key to provide
20 decrypted selected audio title data.

88. The method as claimed in claim 87, further comprising the step of decoding at least a portion of the decrypted selected audio title data.

25 89. The method as claimed in claim 87, wherein the step of watermarking includes watermarking a portion of the decrypted selected audio title data to provide a watermarked portion of the decrypted selected audio title data.

90. The method as claimed in claim 89, further comprising the step of encoding the
30 watermarked portion of the decrypted selected audio title data.

91. The method as claimed in claim 89, wherein the step of capturing the title data includes scanning the audio title data to determine one of a frequency deviation between channels of the audio title data and time intervals within the audio title data for modulating the audio title data, and determining a plurality of placement locations for
5 modulating the audio title data that are one of where the frequency deviation is less than a predetermined frequency deviation and the time intervals where time/frequency modulating the audio title data are not discernible to a human ear.

92. The method as claimed in claim 91, wherein the step of watermarking the portion
10 of the decrypted selected audio title data includes randomly selecting a randomly selected time/frequency modulation and number relationship from a plurality of time/frequency modulation and number relationships for modulating the decrypted selected audio title data, and combining the randomly selected time/frequency modulation and number relationship with the customer information data to provide a
15 watermarking key.

93. The method as claimed in claim 92, further comprising the step of storing the watermarking key at the central storage facility.

94. The method as claimed in claim 92, wherein the step of watermarking further
20 includes randomly selecting randomly selected locations from the plurality of locations, to time/frequency modulate the decrypted selected audio title data.

95. The method as claimed in claim 94, further comprising the step of time/frequency
25 modulating the portion of the decrypted selected audio title data according to the randomly selected time/frequency modulation and number relationship at the randomly selected locations, to insert the customer information data into the portion of the decrypted selected audio title data and provide the watermarked portion of the decrypted selected audio title data.

96. The method as claimed in claim 95, further comprising the step of combining the watermarked portion of the decrypted selected audio title data with the decrypted selected audio title data, to provide watermarked decrypted selected audio title data.

5 97. The method as claimed in claim 96, wherein the encrypted title data also includes encrypted video title data, and the step of decrypting includes decrypting the encrypted video title data to provide decrypted selected video title data; and

further comprising the step of combining the watermarked decrypted selected audio title data with the decrypted selected video title data to provide the decrypted
10 selected title data as the selected title data.

98. The method as claimed in claim 94, wherein the step of watermarking further includes selecting a channel of the decrypted selected audio title data as a reference channel and selecting another channel of the decrypted selected audio title data as a
15 watermarked channel, and wherein the step of time/frequency modulating is performed on the watermarked channel to provide the watermarked channel of the decrypted selected audio title data.

99. The method as claimed in claim 98, wherein the step of watermarking further
20 includes randomly switching the reference channel and the watermarked channel of the decrypted selected audio title data.

100. The method as claimed in claim 58, further comprising the step of one of selecting advertising content data from a local cache and receiving the advertising
25 content data from the central storage facility, and inserting the advertising content data into the selected title data.

101. The method as claimed in claim 58, further comprising the step of providing the selected title data to a title on demand network.

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102. The method as claimed in claim 58, further comprising the step of providing the selected title data to the communications network so that it can be accessed by the customer at the entry portal.

5 103. The method as claimed in claim 58, further comprising the step of burning a selected medium with the selected title data.

104. The method as claimed in claim 103, further comprising the step of printing any of the selected medium, a label for the selected medium, and packaging for the selected
10 medium with any of vendor identification data, the customer information data, graphics data and a bar code.

105. The method as claimed in claim 103, further comprising the step of managing an order in which the selected title data is burned.

15 106. The method as claimed in claim 103, further comprising the step of providing a status of the order to a customer that submitted the order.

107. The method as claimed in claim 58, further comprising the step of storing a
20 plurality of encrypted title data in a remote storage location other than the central storage facility, according to selected criteria.

108. The method as claimed in claim 107, further comprising the step of configuring the selected criteria to delete least-used encrypted title data.

25 109. The method as claimed in claim 107, further comprising the step of configuring the selected criteria so that specified encrypted title data are always stored at the remote storage location.

30 110. The method as claimed in claim 58, wherein the steps of previewing, selecting and ordering the selected title are done through an electronic commerce web site.

111. The method as claimed in claim 58, wherein the step of ordering the selected title includes obtaining approval for the order and as a result of the approval, providing the customer information data and the selection information data.

5 112. A method of watermarking title data, the method comprising the steps of:
scanning the title data to determine a plurality of placement locations for
modulating the title data;
randomly selecting a randomly selected time/frequency modulation and number
relationship from a plurality of time/frequency modulation and number relationships; and
10 time/frequency modulating at least a portion of the title data at the plurality of
locations according to the randomly selected time/frequency modulation and number
relationship, to watermark the title data with customer identification data, and
providing watermarked titled data.

15 113. The method as claimed in claim 112, further comprising the steps of:
generating a watermarking key that is a combination of the customer
identification data and the randomly selected time/frequency modulation and number
relationship; and
storing the watermarking key in a secure database.

20 114. The method as claimed in claim 113, wherein the step of generating the
watermarking key includes generating a unique watermark key for each watermarked
title data.

25 115. The method as claimed in claim 112, wherein the title data is audio title data.

116. The method as claimed in claim 115, further comprising the step of decoding at
least a portion of the audio title data.

30 117. The method as claimed in claim 115, wherein the step of scanning the title data
includes scanning the audio title data to determine the plurality of locations where one of
a frequency deviation between channels of the audio title data is less than a
predetermined frequency deviation, and time intervals within the audio title data for

time-frequency modulating the audio title data where the time/frequency modulating of the audio title data is not discernible to a human ear.

118. The method as claimed in claim 117, wherein the step of randomly selecting
5 includes randomly selecting from the plurality of placement locations, randomly selected locations where the audio title data will be time/frequency modulated.

119. The method as claimed in claim 118, wherein the step of time/frequency
10 modulating includes time/frequency modulating the audio title data according to the randomly selected time/frequency modulation and number relationship at the randomly selected locations, to insert the customer identification data into the audio title data at the randomly selected locations.

120. The method as claimed in claim 117, wherein the step of scanning includes
15 selecting a channel of the audio title data as a reference channel, and selecting another channel of the audio title data to be time/frequency modulated as a watermarked channel.

121. The method as claimed in claim 120, wherein the reference channel and the watermarked channel are randomly changed.

122. The method as claimed in claim 115, wherein the watermarked title data is
20 watermarked audio title data, and further comprising the step of encoding the watermarked audio title data.

123. The method as claimed in claim 122, further comprising the step of combining
25 the watermarked audio title data with a remainder of the audio title data to provide the watermarked audio title data.

124. The method as claimed in claim 116, further comprising the step of combining
30 the watermarked audio title with corresponding video title data to provide the watermarked title data.

